

What is claimed:

2. A method of in-place filling and agglutination of a hollowed one-piece reflective pavement marker, said pavement marker having

a substantially hollowed structural body, a sagged, arcuate top surface that includes a hole for in-place injection of resinous structural material, said top surface also includes at least two bleeding holes,

said pavement marker integrally includes two inclined planar faces with multiple reflective cells, said reflective cells each having an inside cell like area with multiple cube corner reflective elements, each reflective cell is supported by thin partition posts with upper periphery regions, said reflective cells are sealed with a thin plastic sheet, said pavement marker integrally having two arcuate sides each having a recessed grip region and a slightly recessed planar base surface defined by a periphery region, said base surface includes the open ends of said hollowed pavement marker,

said method of in-place filling and agglutinating comprising:

a) providing tooling means which allow injection molding of said hollowed reflective pavement marker integrally including the cube corner reflective elements, said tooling means molds said pavement marker in one or two stage color or material injection molding cycle;

b) providing the thin interior posts with angular means defining multiple hollow cavity air gaps and providing periphery regions within the upper portions of said interior posts which allow sealing of said integrally formed cube corner reflective elements within a correspondingly shaped thin plastic sheet, whereby retaining the apexes of said cube corner reflective elements freely inside said hollow cavity air gaps;

c) providing a hard film coating means utilizing either reactive sputtering, plasma enhanced chemical vapor deposition means or ion beam sputtering to coat the exterior surface of said pavement marker with an abrasion resistance film, said film preferably selected from any of carbon, silicon dioxide, aluminum oxide or aluminum trioxides film, said coating means utilize any process that uses chemical film deposition chamber such as using radio frequency plasma decomposition from a gas, said plasma is excited using an electromagnetic alternating fields, said coating means also use reactive sputtering with pressure controller or ion beam sputtering process which can provide one or two stage gradual coating, said coating means use an adhesive enhancing first layer on said substrate surface and simultaneously followed by a hard coat thereafter; and

D) d) providing means for in-place marker dispensing and polymeric material injection system to simultaneously fill and agglutinate said one-piece reflective pavement marker on designated roadway lanes, said injection means use means for multiple marker stacking, guiding and dispensing, said injection system uses an apparatus to hold a marker in-place on a roadway surface during said filling process, said one or two components polymer injection system uses heating elements and control means to simultaneously synchronize the above in-place dispensing, filling and agglutination process.

whereby said reflective pavement marker will be monolithically formed including said cube corner reflective elements with abrasion resistant carbon coated exterior surface and provided an in-place filling and agglutination means.



Underlined

Application No. 09/982,044
Applicant: Adil Attar

What is claimed:

2. A method of in-place filling and agglutination of a hollowed one-piece reflective pavement marker, said pavement marker having
- a substantially hollowed structural body, a sagged, arcuate top surface that includes a hole for in-place injection of resinous structural material, said top surface also includes at least two bleeding holes,
- said pavement marker integrally includes two inclined planar faces with multiple reflective cells, said reflective cells each having an inside cell like area with multiple cube corner reflective elements, each reflective cell is supported by thin partition posts with upper periphery regions, said reflective cells are sealed with a thin plastic sheet, said pavement marker integrally having two arcuate sides each having a recessed grip region and a slightly recessed planar base surface defined by a periphery region, said base surface includes the open ends of said hollowed pavement marker,
- said method of in-place filling and agglutinating comprising:
- a) providing tooling means which allow injection molding of said hollowed reflective pavement marker integrally including the cube corner reflective elements, said tooling means [can mold] molds said pavement marker in one or two stage color or material injection molding cycle;
 - b) providing the [load carrying] thin interior posts with angular means defining multiple hollow cavity air gaps and providing periphery regions within the upper portions of said interior posts which allow sealing of said integrally formed cube corner reflective elements within a correspondingly shaped thin plastic sheet, whereby retaining the apexes of said cube corner reflective elements freely inside said hollow cavity air gaps [said hollow cavity air gaps having centerlines inclined about 60 to 90 degrees with respect to the planar base surface of said pavement marker];

c) providing [e] a hard film coating means utilizing either [dip coating,] reactive sputtering, plasma enhanced chemical vapor deposition means or ion beam sputtering to coat the exterior surface of said pavement marker with an abrasion resistance film, [of either] said film preferably selected from any of carbon, silicon dioxide, aluminum oxide or aluminum trioxides film, said coating means [can] utilize any [hybrid] process that uses [in] chemical film deposition chamber such as using radio frequency plasma decomposition from a gas, [such as normal butane] said plasma [can be] is excited using an electromagnetic alternating fields, said coating means [can also utilize] also use reactive sputtering with pressure controller or ion beam sputtering process which can provide one or two stage gradual coating, said coating means [can have] use an adhesive enhancing first layer on said substrate surface and simultaneously followed by a hard coat thereafter; and

d) providing [e] means for in-place marker dispensing and polymeric material injection system to simultaneously fill and agglutinate said one-piece reflective pavement marker on designated roadway lanes, said injection means [can have the] use means for multiple marker stacking, guiding and dispensing, said injection system [can have] uses an apparatus to hold a marker in-place on a roadway surface during said filling process, said one or two components polymer injection system [can have] uses heating elements and control means to simultaneously synchronize the above in-place dispensing, filling and agglutination process.

whereby said reflective pavement marker will be monolithically formed including said cube corner reflective elements with abrasion resistant carbon coated exterior surface and provided an in-place filling and agglutination means.